Course: Solid State Spectroscopy

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Requirements for participation:
Basic knowledge of condensed matter physics

Type of module examinations:
One oral examination at the end of the module

Duration of the course:
1 semester

Aims of the course:
Spectroscopy is crucial for the understanding of novel materials. This lecture aims to give an introduction to some of the important methods that have been established over the last years. It covers the basic concepts and techniques of optical and electron spectroscopic techniques. The course also contains examples from recent research breakthroughs that have been achieved using spectroscopic techniques.

Contents of the course:
Topics covered are:
- Light sources
- Spectral analysis of light
- Model dielectric functions
- Optical spectroscopy (absorption, infrared spectroscopy, Raman)
- Applications of group theory to spectroscopy
- Photoelectron spectroscopy

Recommended literature:
Joachim Stohr: NEXAFS Spectroscopy (Springer, 1996)